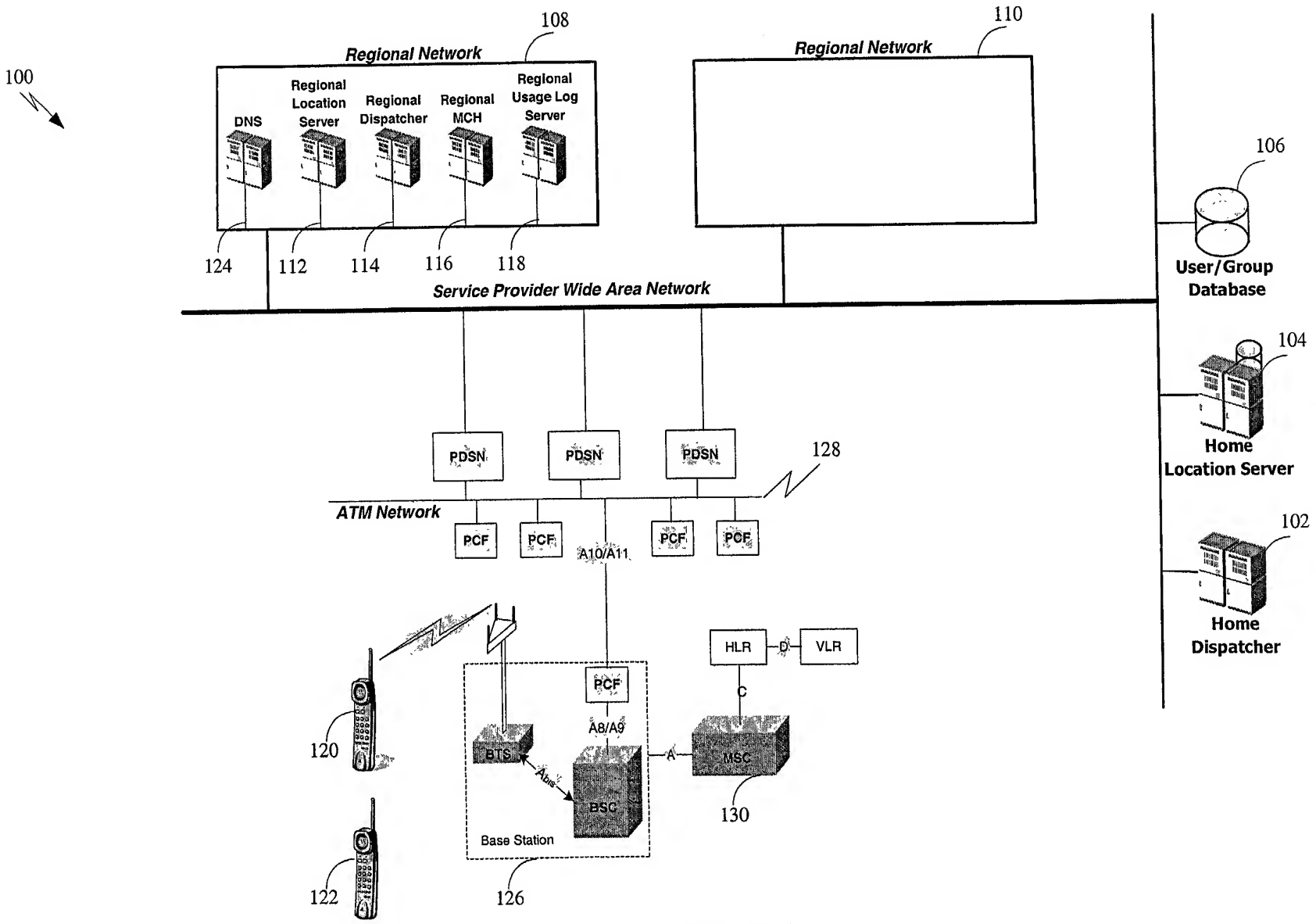
100
108
Regional Network
DNS
Regional Location Server
Regional Dispatcher
Regional MCH
Regional Usage Log Server
110
Regional Network
106
User/Group Database
104
Home Location Server
102
Home Dispatcher
124
112
114
116
118
Service Provider Wide Area Network
PDSN
PDSN
PDSN
128
ATM Network
PCF
PCF
A10/A11
PCF
PCF
HLR
D
VLR
C
PCF
A8/A9
BTS
Abis
BSC
A
MSC
130
120
122
Base Station
126

FIGURE 1

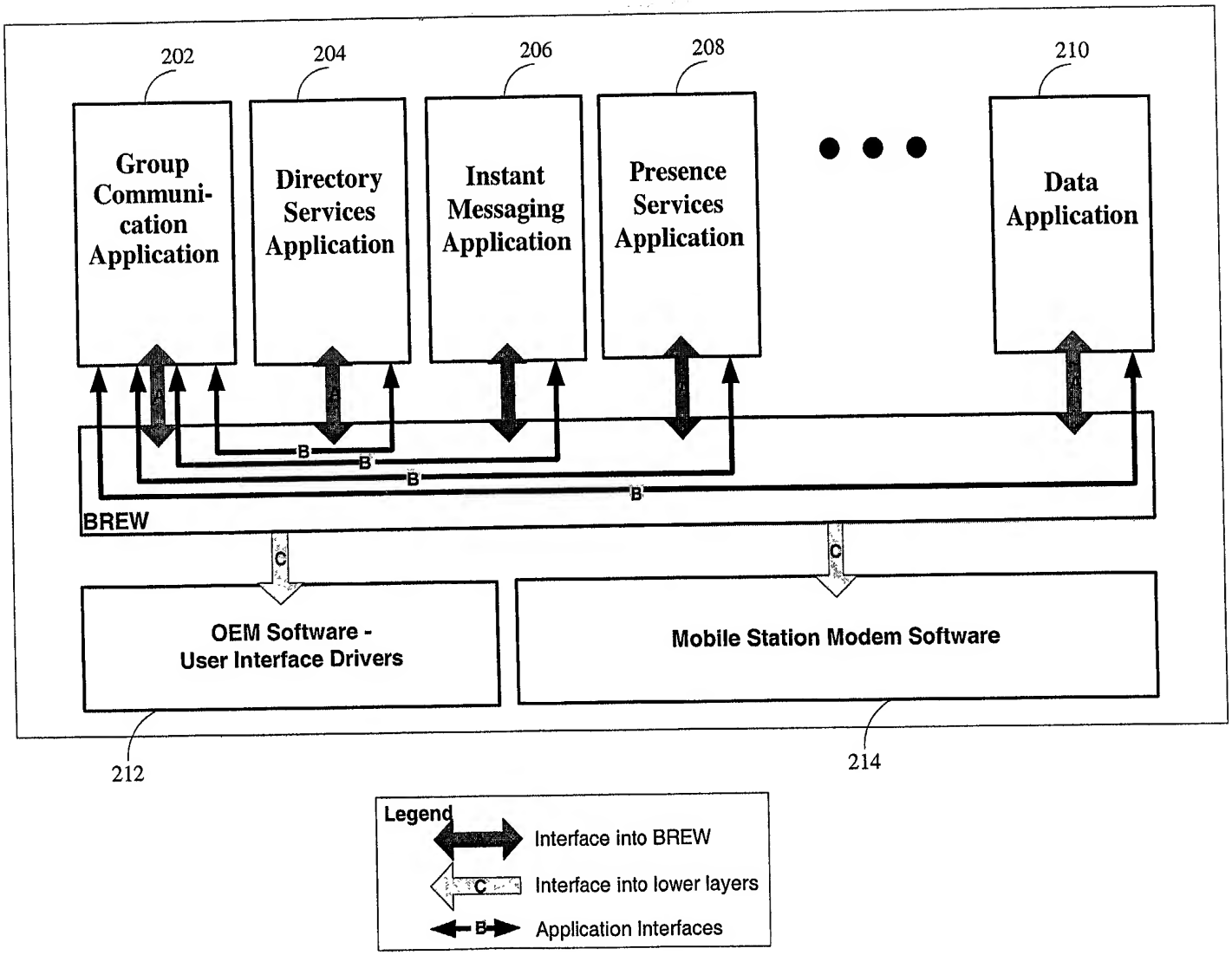
202
204
206
208
210
Group Communi-cation Application
Directory Services Application
Instant Messaging Application
Presence Services Application
Data Application
B
B
B
B
BREW
C
C
OEM Software - User Interface Drivers
Mobile Station Modem Software
212
214
Legend
Interface into BREW
C
Interface into lower layers
B
Application Interfaces

FIGURE 2

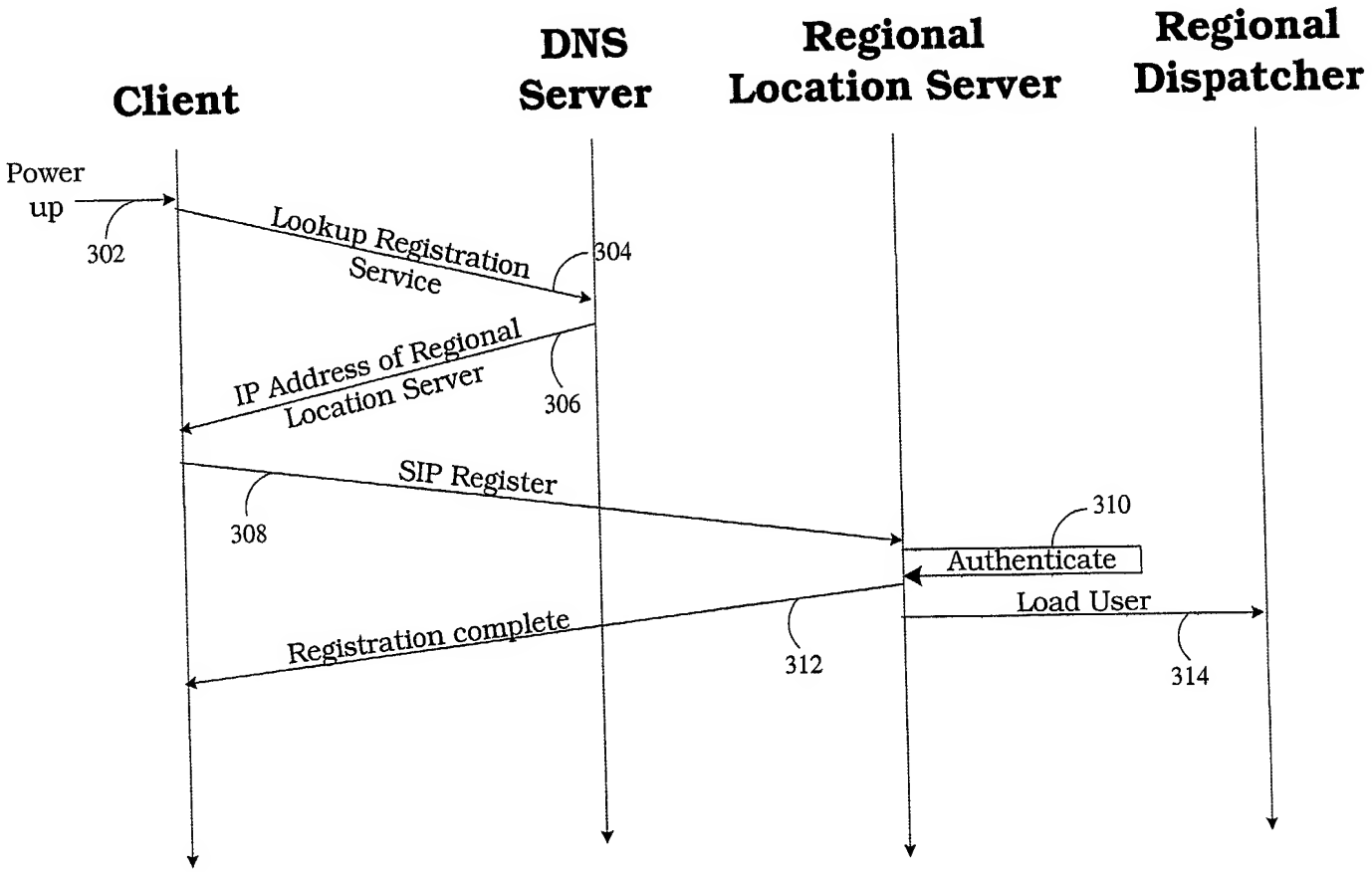
Client
DNS Server
Regional Location Server
Regional Dispatcher
Power up
302
Lookup Registration Service
304
IP Address of Regional Location Server
306
SIP Register
308
310
Authenticate
Load User
Registration complete
312
314

FIGURE 3

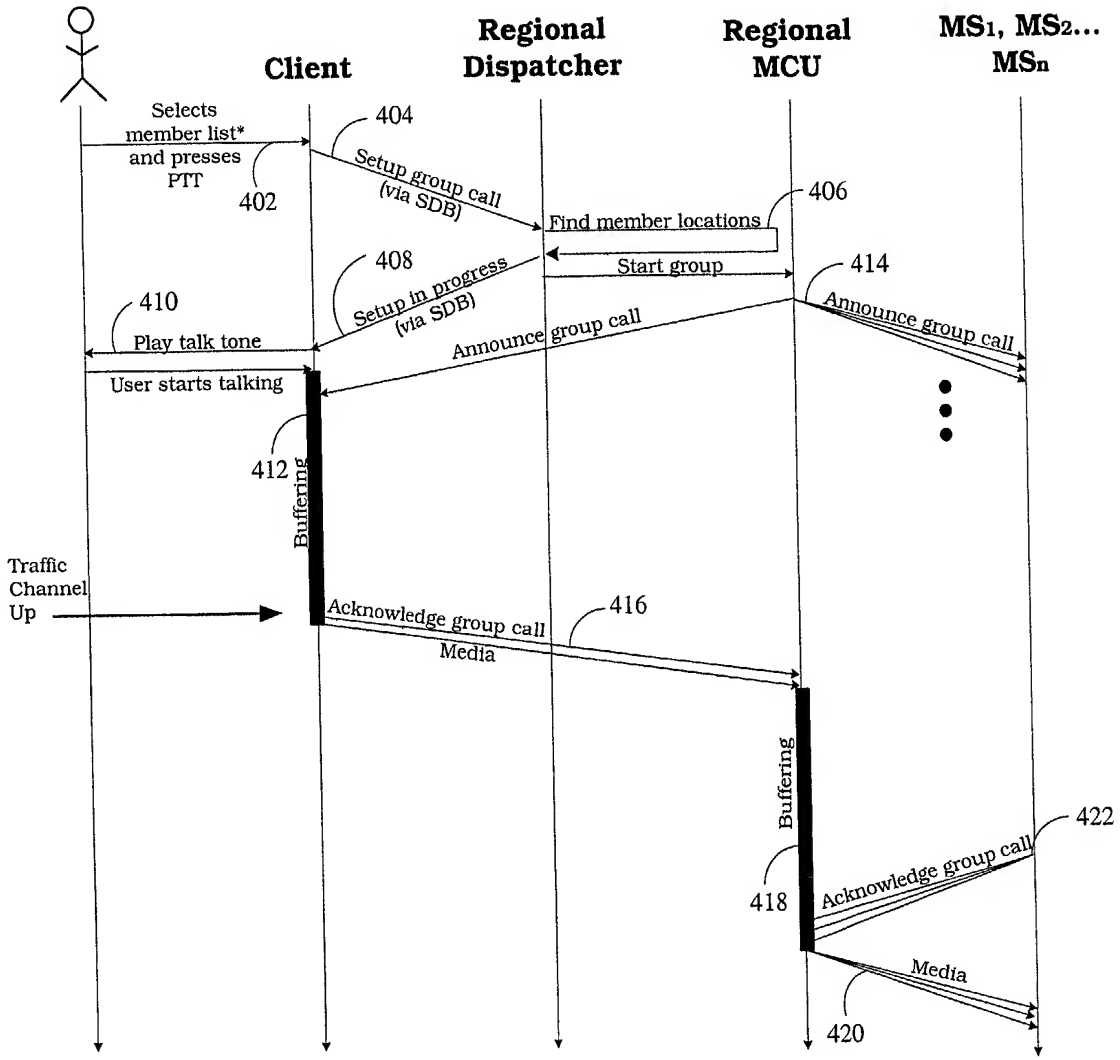
Client
Regional Dispatcher
Regional MCU
MS1, MS2... MSn
Selects member list* and presses PTT
402
404
Setup group call (via SDB)
Find member locations
406
Start group
414
408
Setup in progress (via SDB)
410
Play talk tone
Announce group call
Announce group call
User starts talking
412
Buffering
Traffic Channel Up
Acknowledge group call
416
Media
Buffering
422
418
Acknowledge group call
Media
420

FIGURE 4

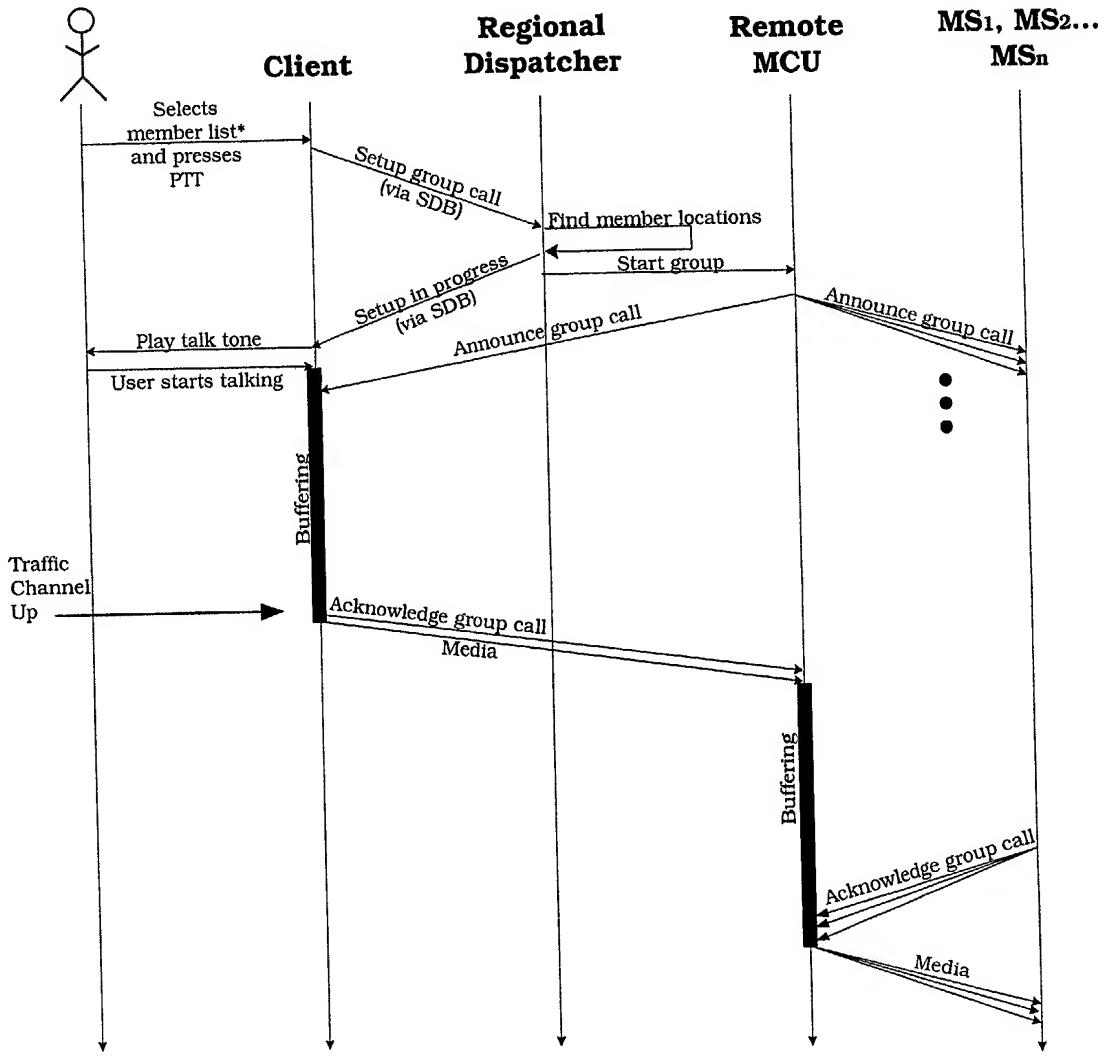
Client
Regional Dispatcher
Remote MCU
MS1, MS2... MSn
Selects member list* and presses PTT
Setup group call (via SDB)
Find member locations
Start group
Setup in progress (via SDB)
Announce group call
Play talk tone
User starts talking
Buffering
Traffic Channel Up
Acknowledge group call
Media
Buffering
Acknowledge group call
Media

FIGURE 5

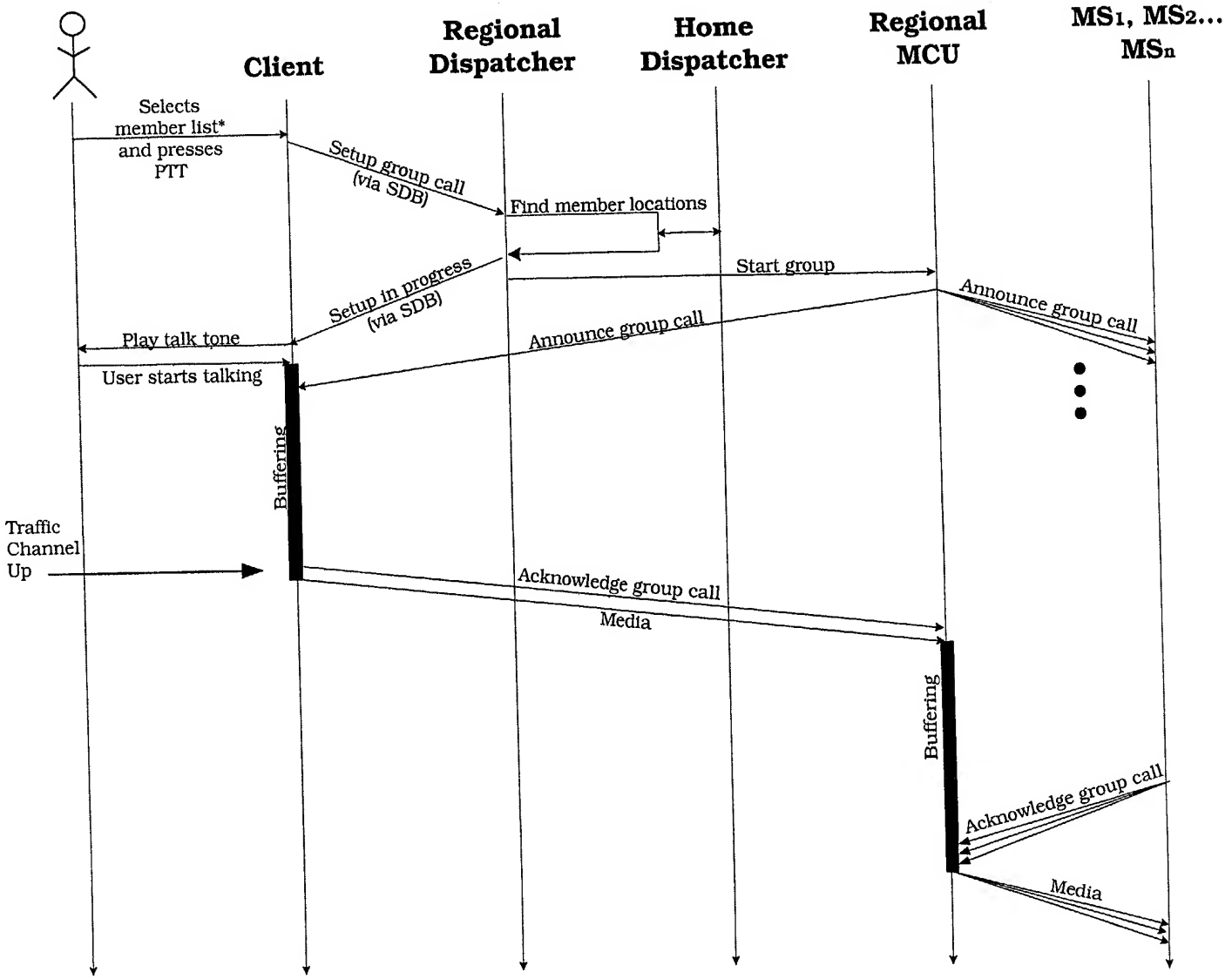
Client
Regional Dispatcher
Home Dispatcher
Regional MCU
MS1, MS2... MSn
Selects member list* and presses PTT
Setup group call (via SDB)
Find member locations
Start group
Announce group call
Setup in progress (via SDB)
Play talk tone
Announce group call
User starts talking
Buffering
Traffic Channel Up
Acknowledge group call
Media
Buffering
Acknowledge group call
Media

FIGURE 6

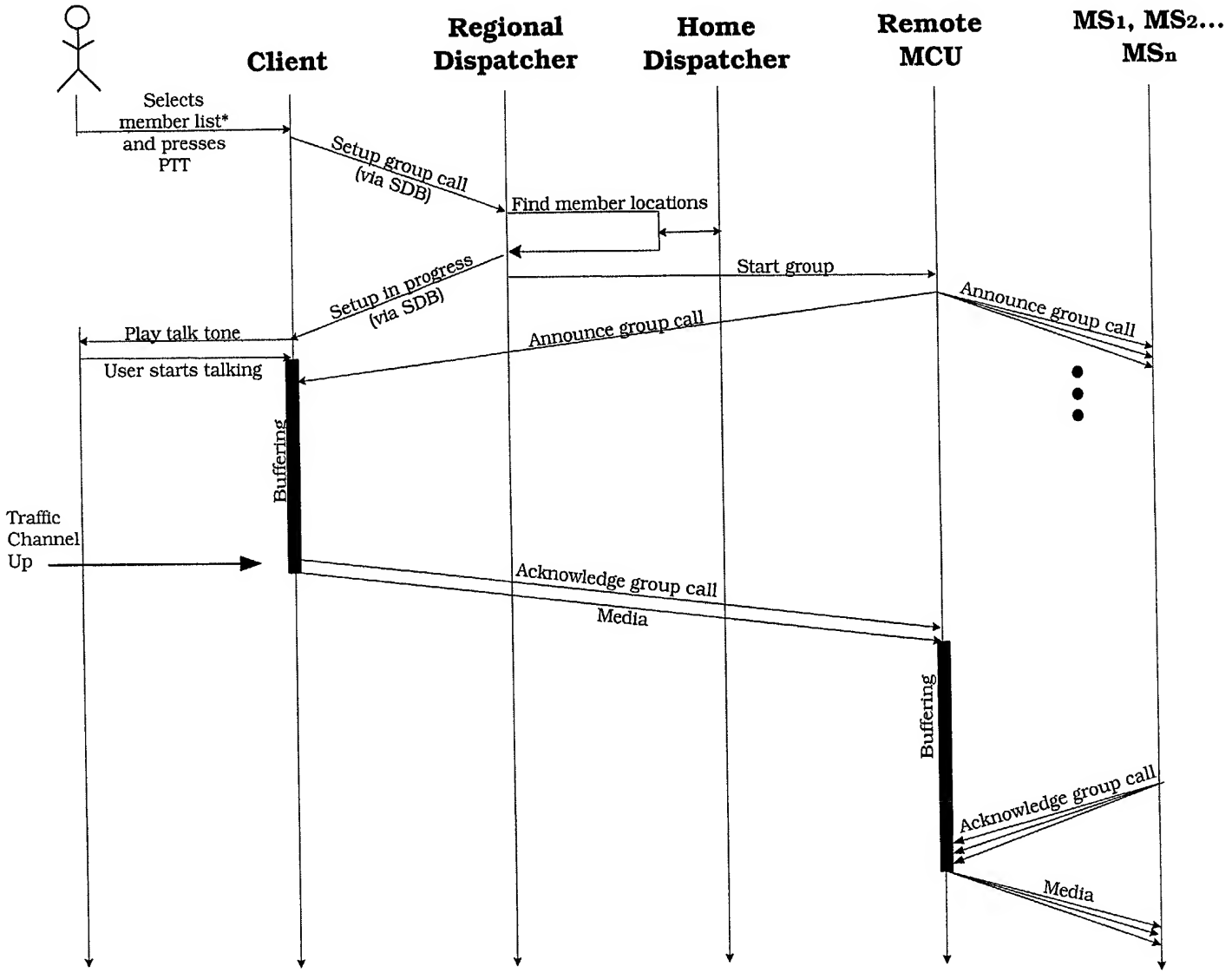
Client
Regional Dispatcher
Home Dispatcher
Remote MCU
MS1, MS2... MSn
Selects member list* and presses PTT
Setup group call (via SDB)
Find member locations
Start group
Setup in progress (via SDB)
Announce group call
Play talk tone
Announce group call
User starts talking
Buffering
Traffic Channel Up
Acknowledge group call
Media
Buffering
Acknowledge group call
Media

FIGURE 7

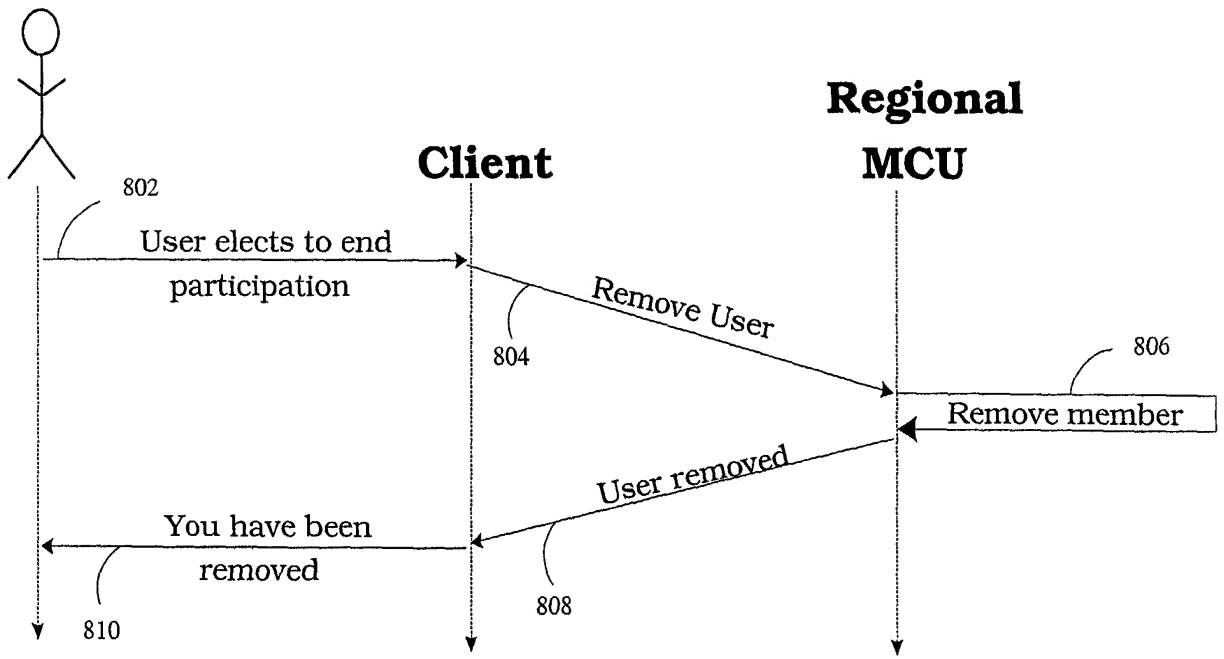
Client
Regional MCU
802
User elects to end participation
804
Remove User
806
Remove member
User removed
You have been removed
808
810

FIGURE 8

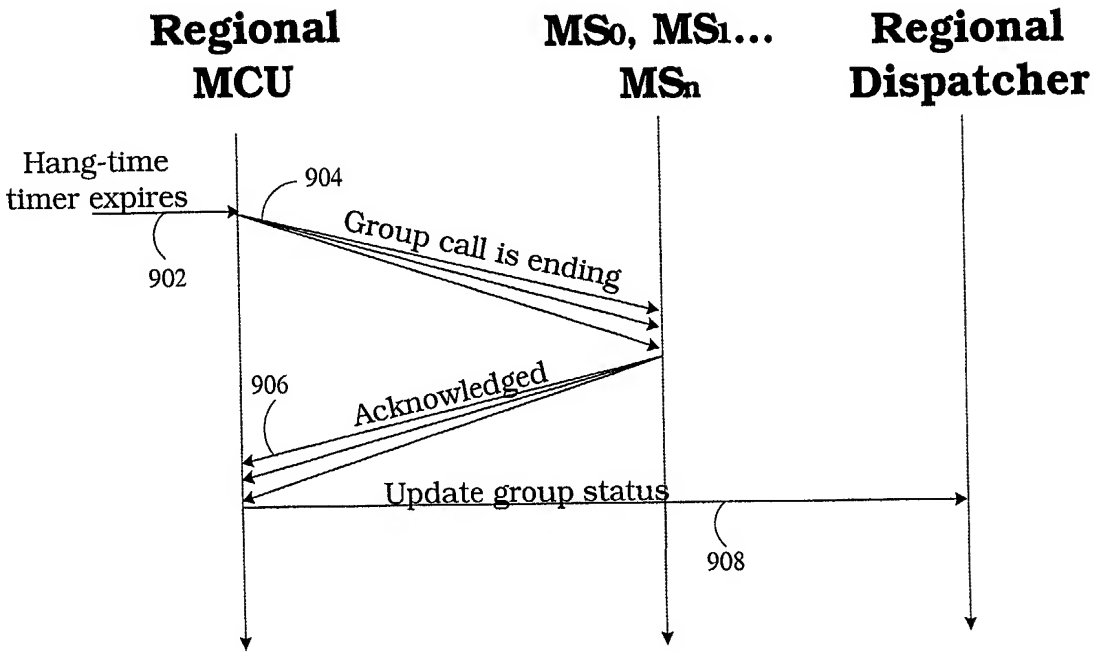
Regional MCU
MS0, MS1... MSn
Regional Dispatcher
Hang-time timer expires
902
904
Group call is ending
906
Acknowledged
Update group status
908

FIGURE 9

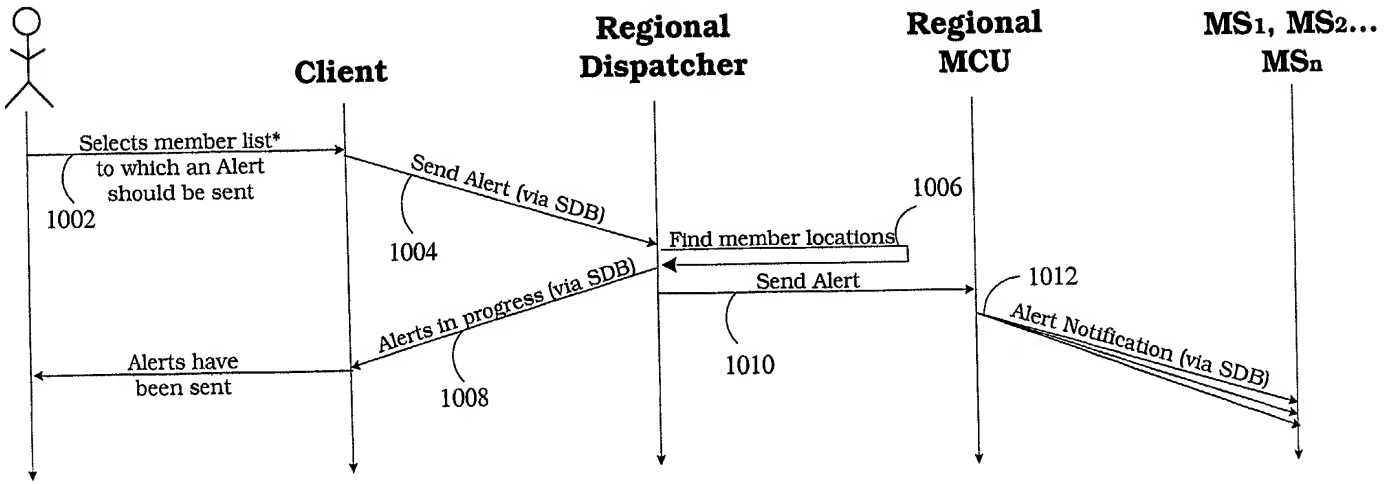
Client
Regional Dispatcher
Regional MCU
MS1, MS2... MSn
Selects member list* to which an Alert should be sent
1002
Send Alert (via SDB)
1004
Find member locations
1006
Send Alert
1010
1012
Alert Notification (via SDB)
Alerts in progress (via SDB)
1008
Alerts have been sent

FIGURE 10

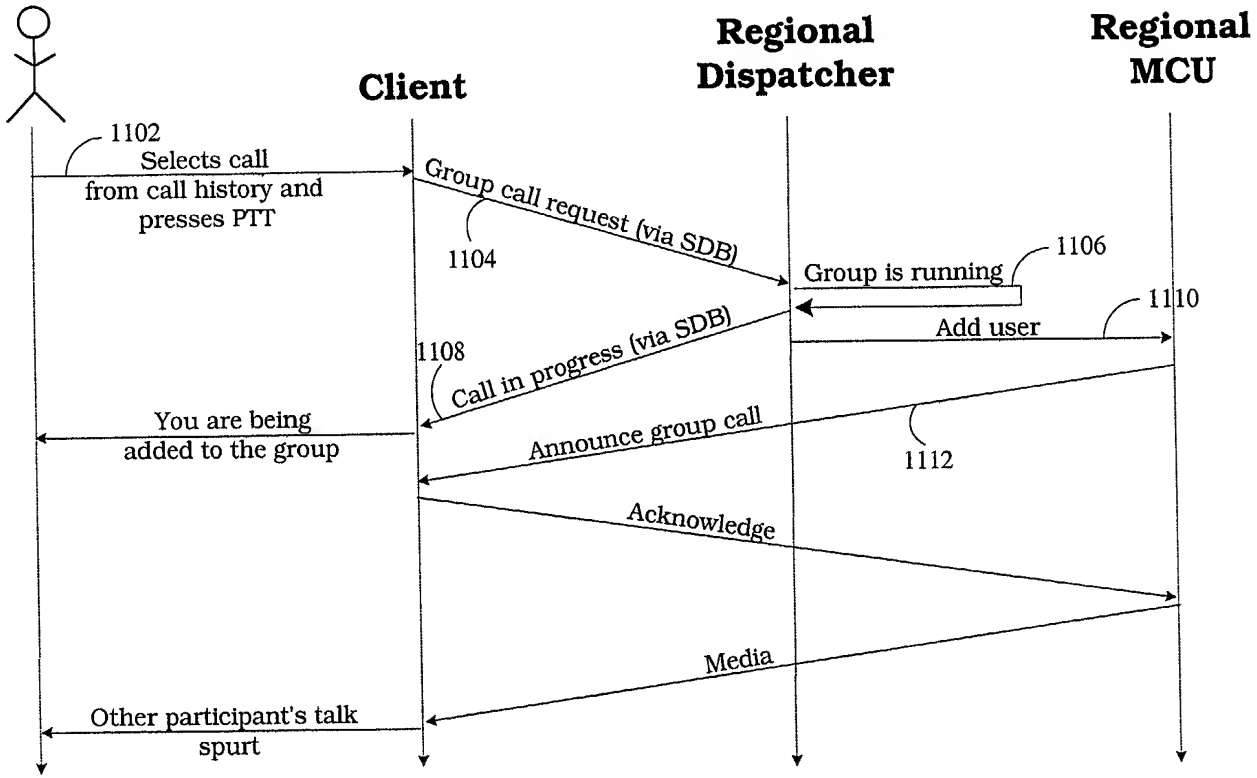
Client
Regional Dispatcher
Regional MCU
1102
Selects call from call history and presses PTT
Group call request (via SDB)
1104
Group is running
1106
Add user
1110
Call in progress (via SDB)
1108
You are being added to the group
Announce group call
1112
Acknowledge
Media
Other participant's talk spurt

FIGURE 11

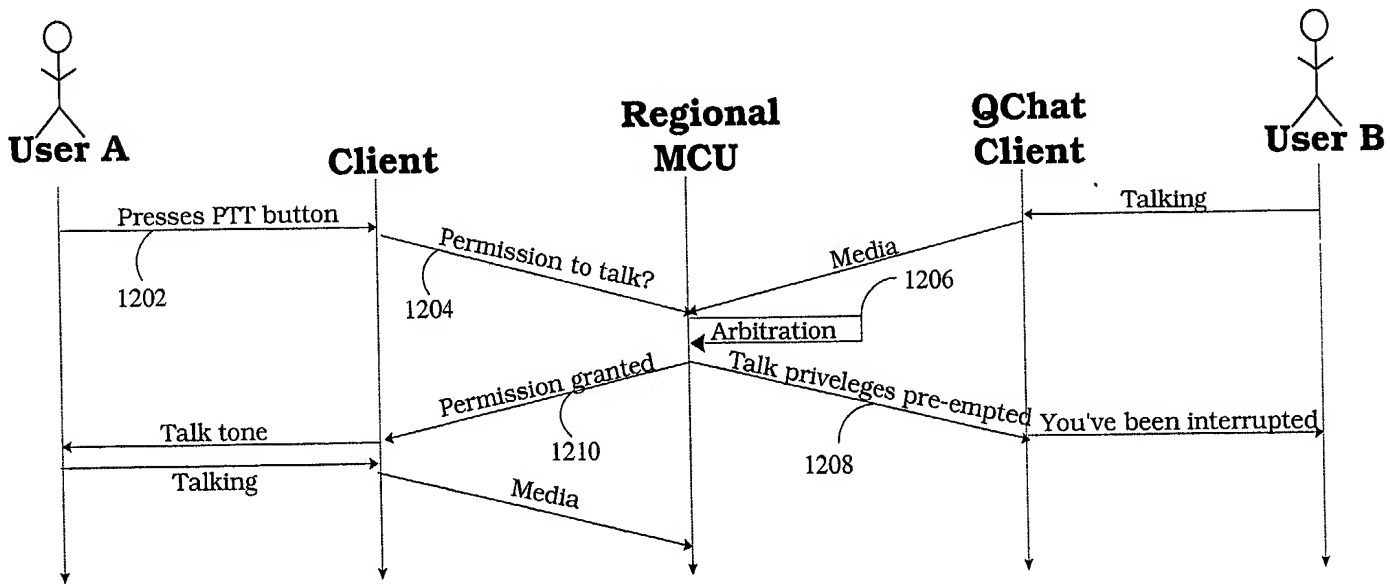
User A
Client
Regional MCU
QChat Client
User B
Presses PTT button
1202
Permission to talk?
1204
Media
1206
Arbitration
Talking
Permission granted
1210
Talk priveleges pre-empted
1208
You've been interrupted
Talk tone
Talking
Media

FIGURE 12

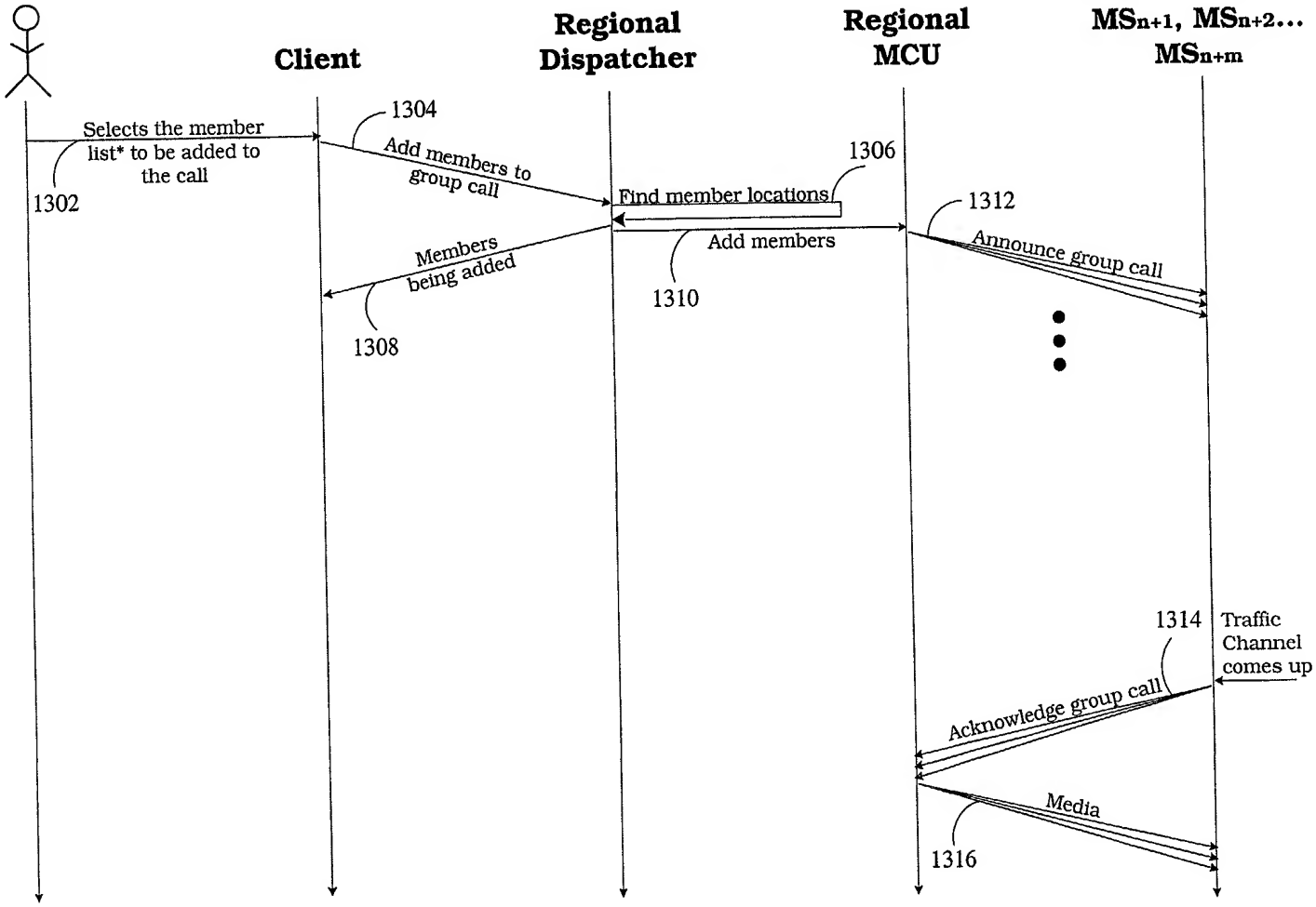
Client
Regional Dispatcher
Regional MCU
MSn+1, MSn+2... MSn+m
Selects the member list* to be added to the call
1302
1304
Add members to group call
1306
Find member locations
1312
Announce group call
Add members
1310
Members being added
1308
1314
Traffic Channel comes up
Acknowledge group call
Media
1316

FIGURE 13

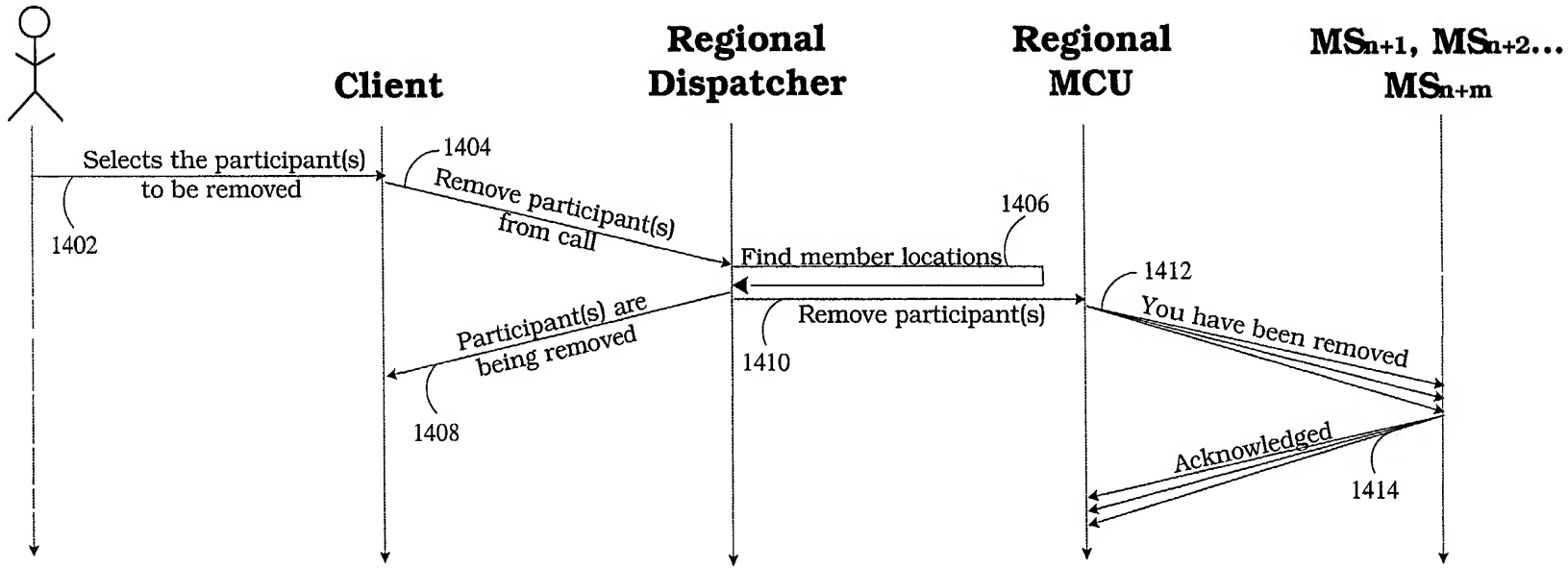
Client
Regional Dispatcher
Regional MCU
MSn+1, MSn+2... MSn+m
Selects the participant(s) to be removed
1402
1404
Remove participant(s) from call
1406
Find member locations
Remove participant(s)
1410
1412
You have been removed
Participant(s) are being removed
1408
Acknowledged
1414

FIGURE 14

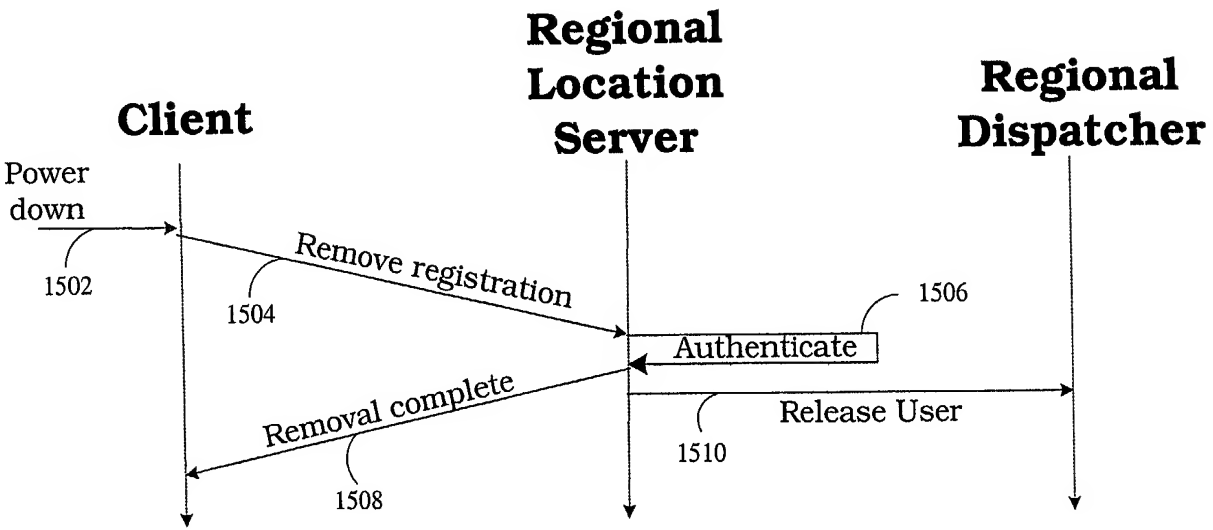
Client
Regional Location Server
Regional Dispatcher
Power down
1502
Remove registration
1504
1506
Authenticate
Removal complete
1508
Release User
1510

FIGURE 15

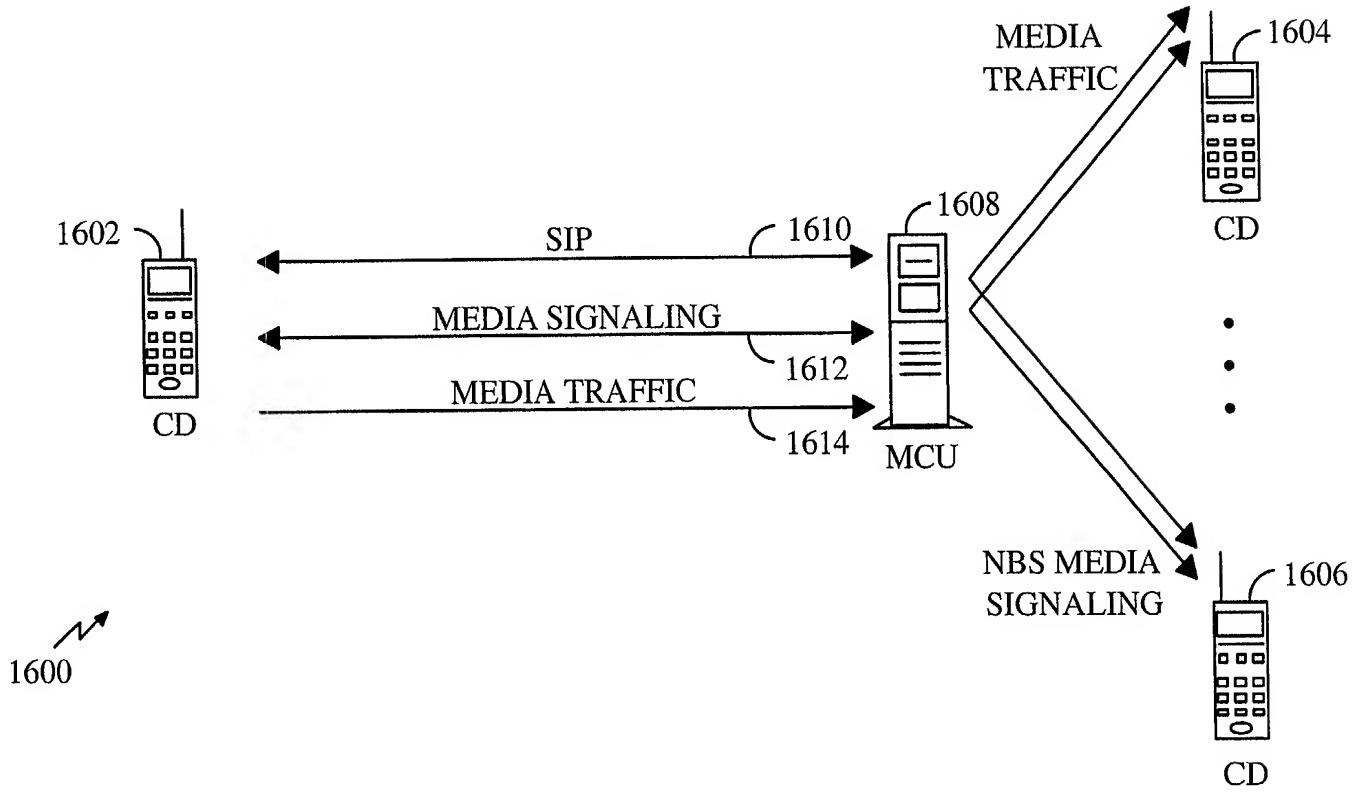
1602
CD
SIP
1610
MEDIA SIGNALING
1612
MEDIA TRAFFIC
1614
1608
MCU
MEDIA
TRAFFIC
1604
CD
NBS MEDIA
SIGNALING
1606
CD
1600

FIGURE 16

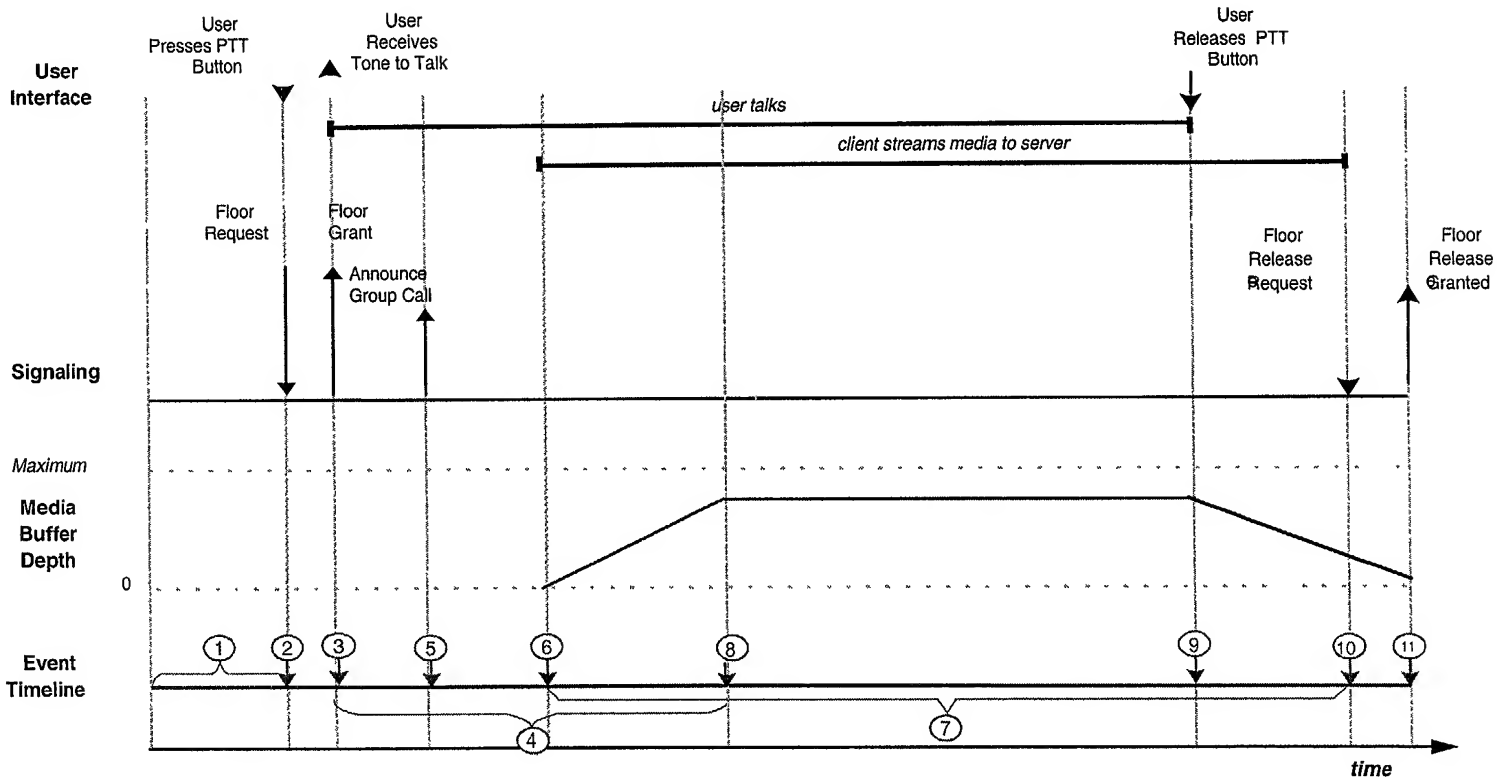
User Presses PTT Button
User Receives Tone to Talk
User Releases PTT Button
User Interface
user talks
client streams media to server
Floor Request
Floor Grant
Announce Group Call
Floor Release Request
Floor Release Granted
Signaling
Maximum
Media Buffer Depth
0
Event Timeline
1
2
3
5
6
8
9
10
11
4
7
time

FIGURE 17

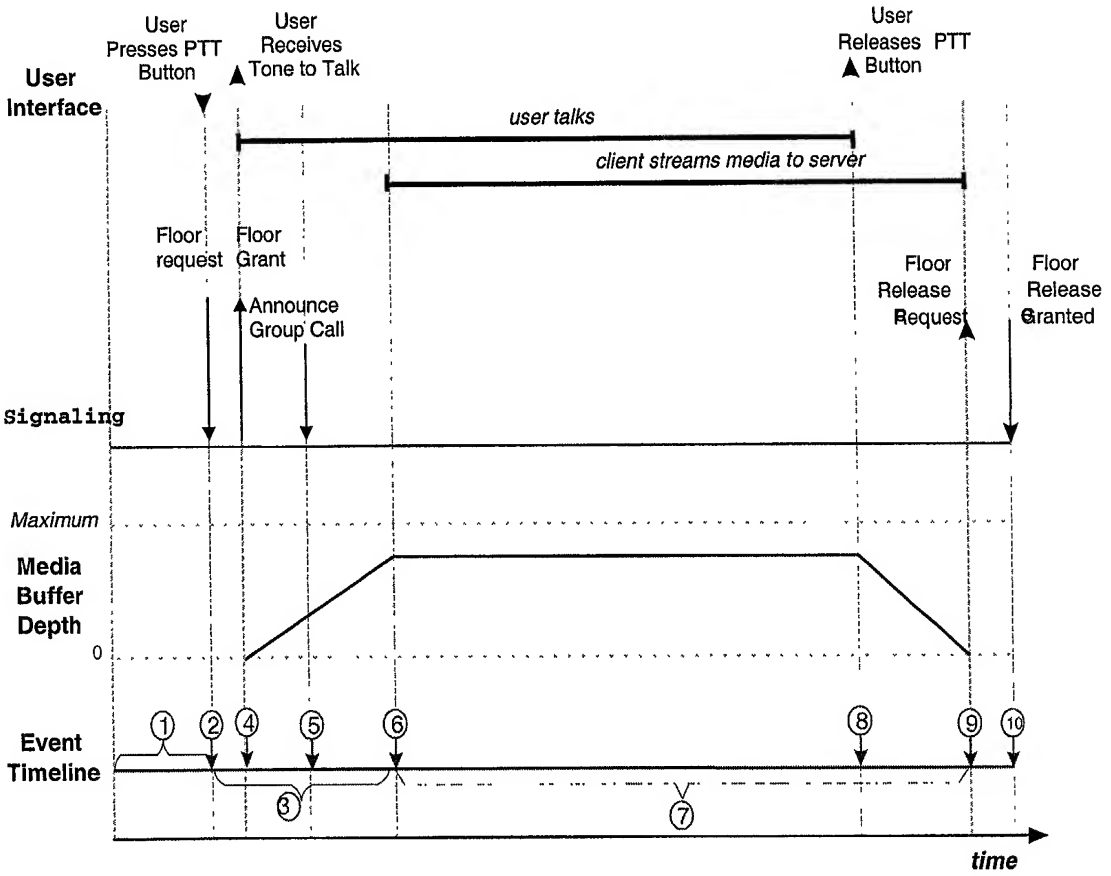
User Presses PTT Button
User Receives Tone to Talk
User Releases PTT Button
User Interface
user talks
client streams media to server
Floor request
Floor Grant
Announce Group Call
Floor Release Request
Floor Release Granted
Signaling
Maximum
Media Buffer Depth
0
Event Timeline
1
2
3
4
5
6
7
8
9
10
time

FIGURE 18